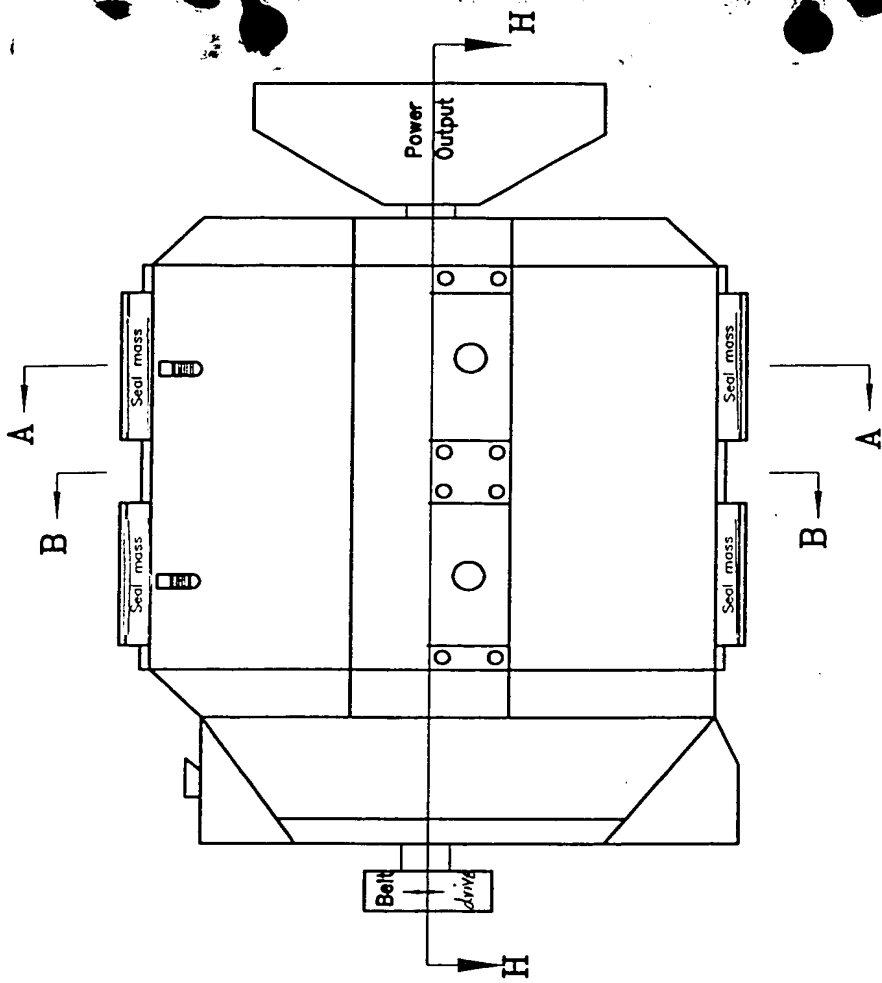


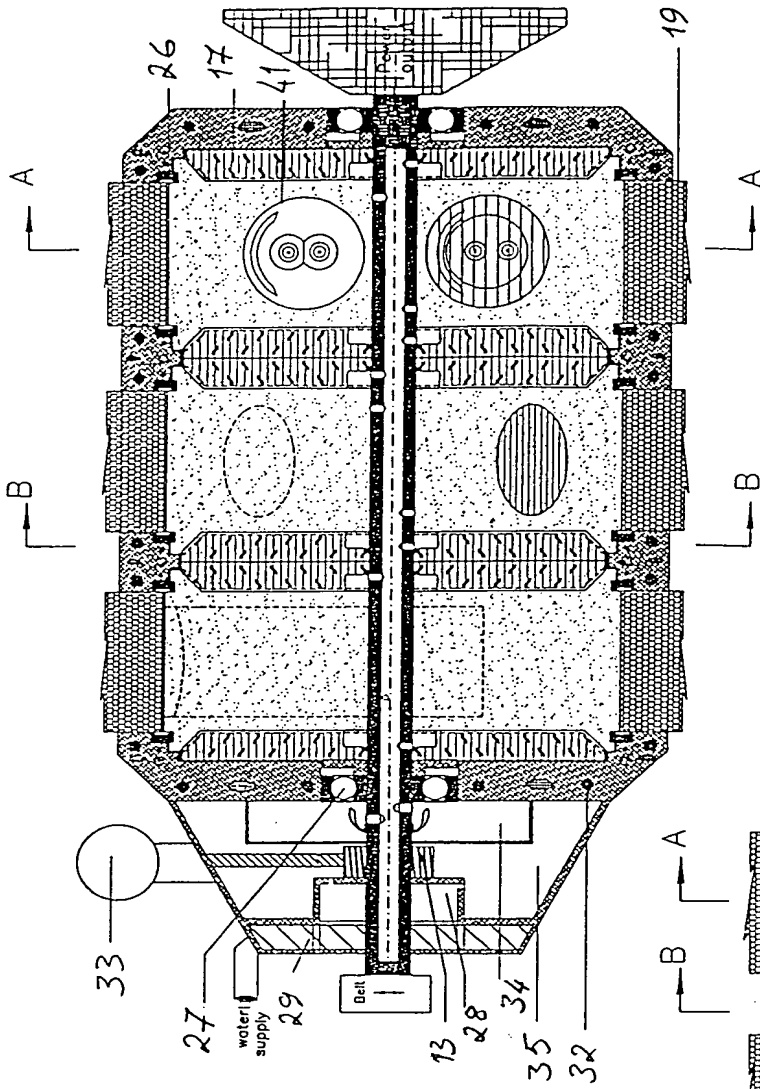
TYPICAL SHAPE - FRONT VIEW

F1b



TYPICAL SHAPE - SIDE VIEW

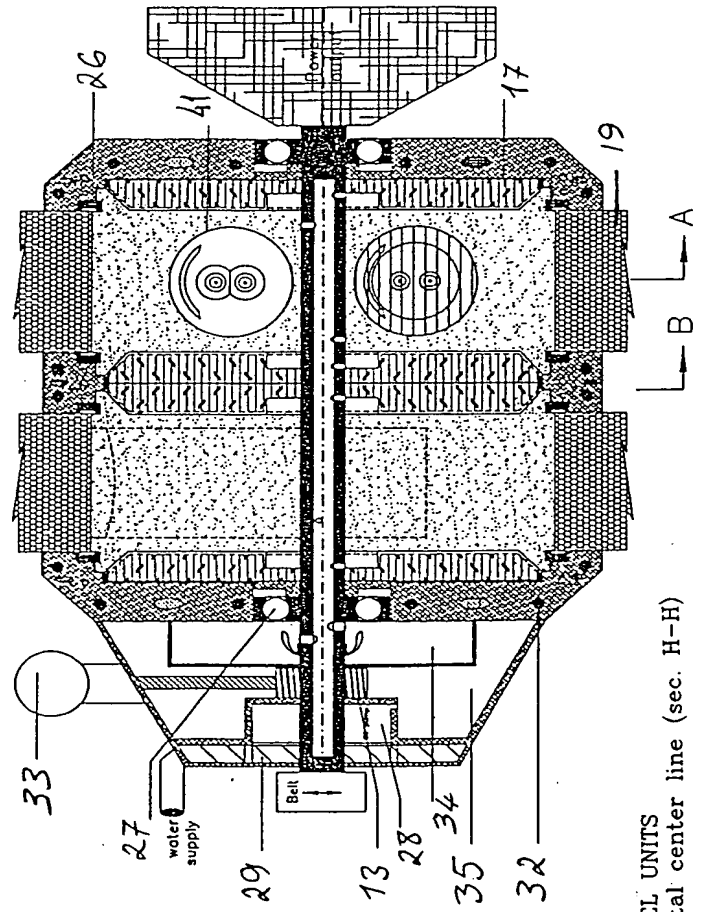
F1a



THREE POWER WHEEL UNITS
Section plan in horizontal center line (sec. H-H)

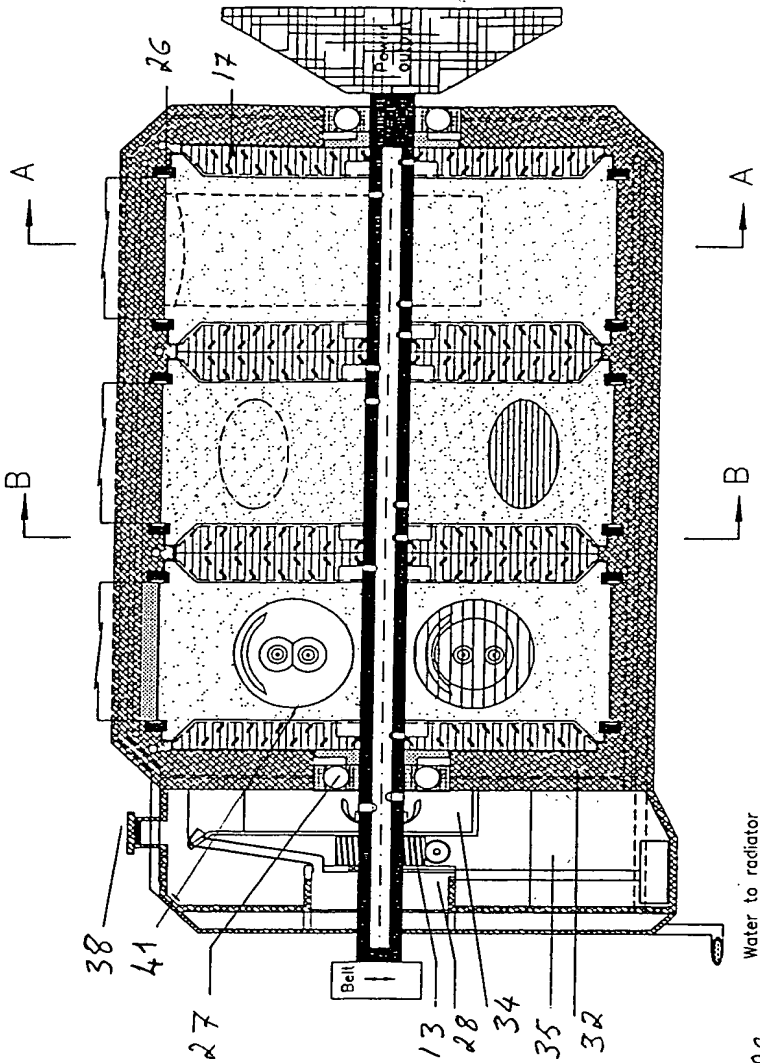
F-2b

Fig-2/25



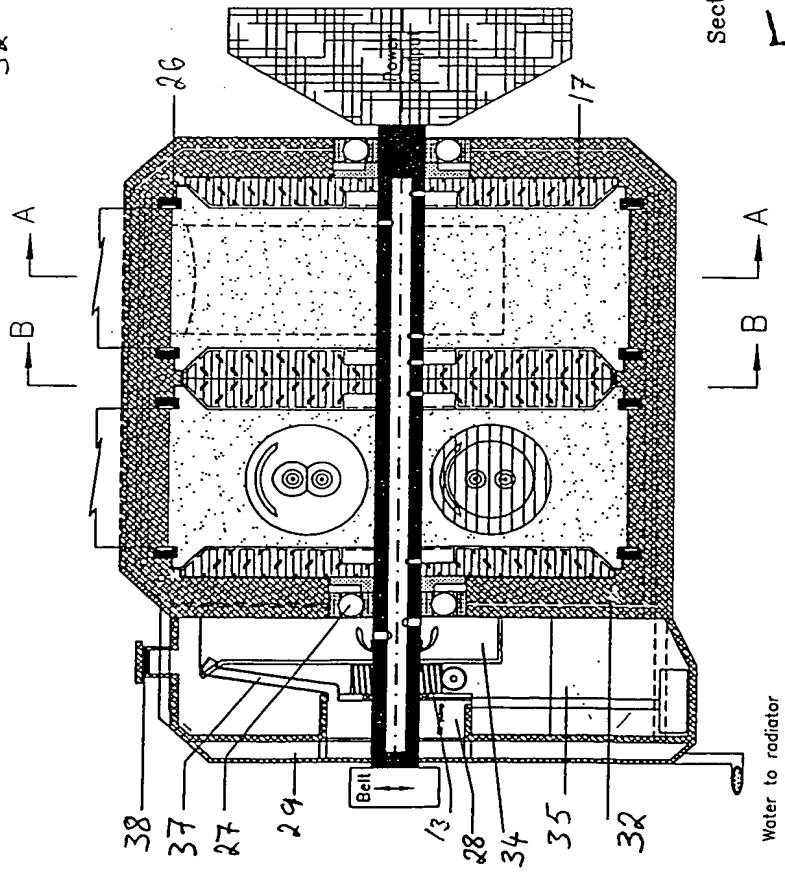
TWO POWER WHEEL UNITS
Section plan in horizontal center line (sec. H-H)

F-2a



THREE POWER WHEEL UNITS
Section plan at vertical center line (sec. V-V)

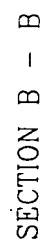
F-3b



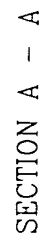
TWO POWER WHEEL UNITS
Section plan at vertical center line (sec. V-V)

F-3a

Fig-3/25

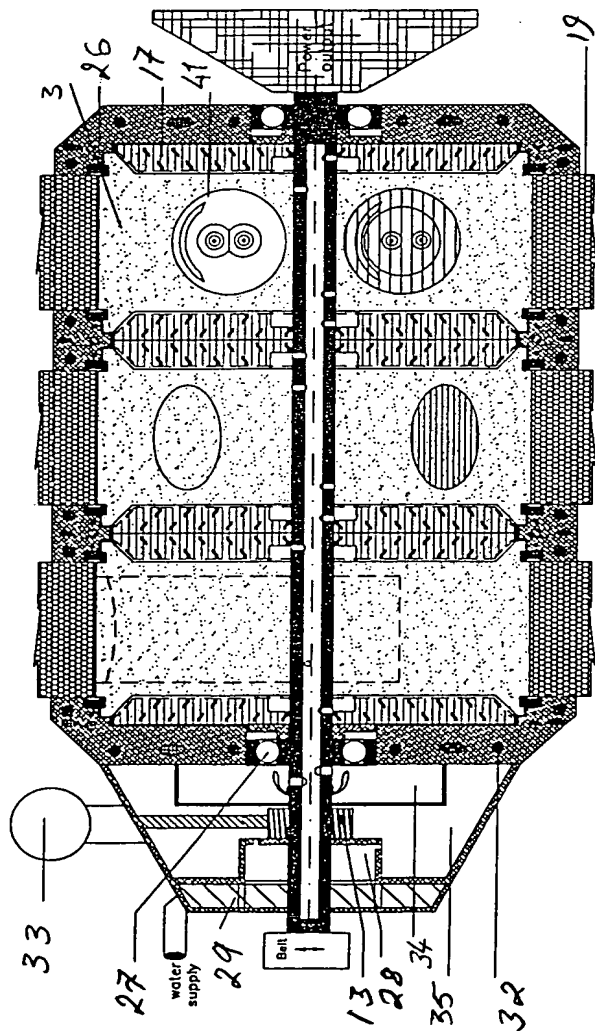


F-46



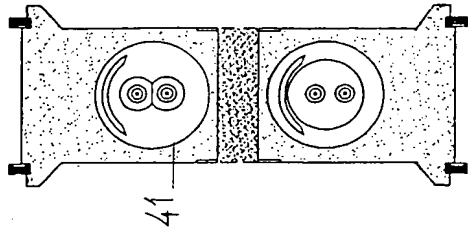
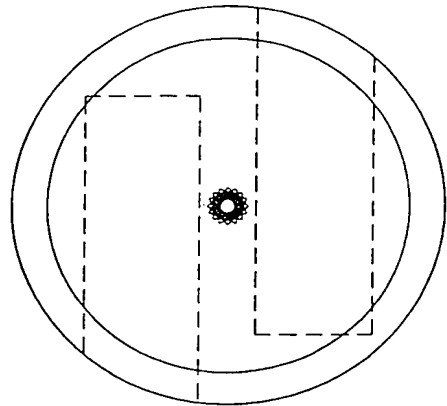
F-4a

Fig-4/25

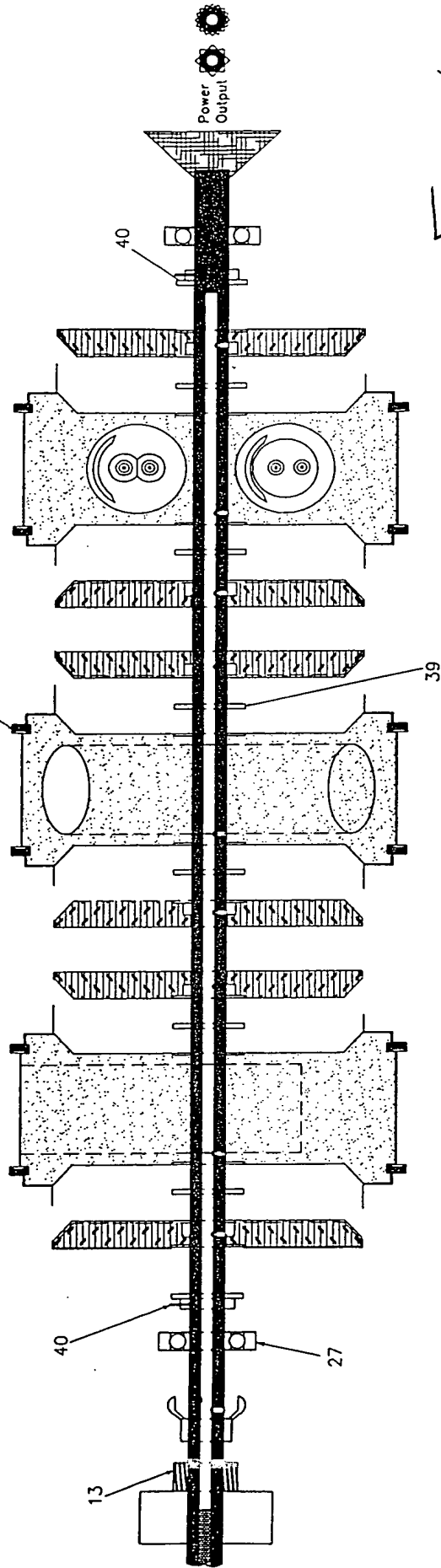


F-5a

Section - Plan in horizontal C.L.



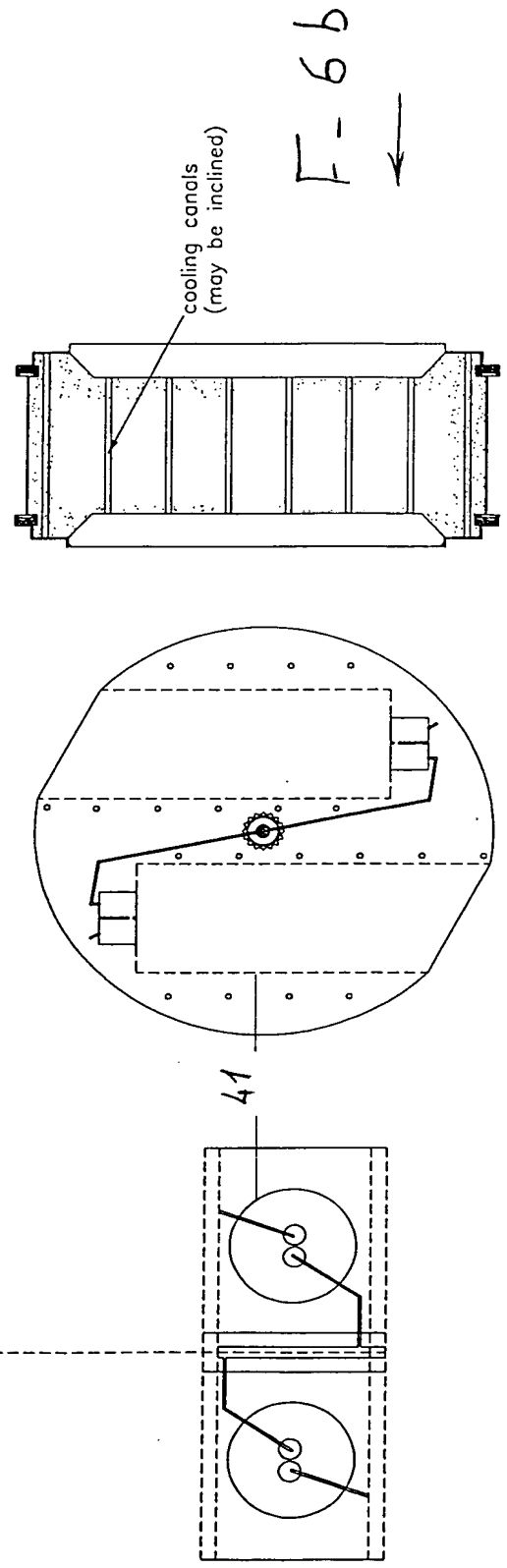
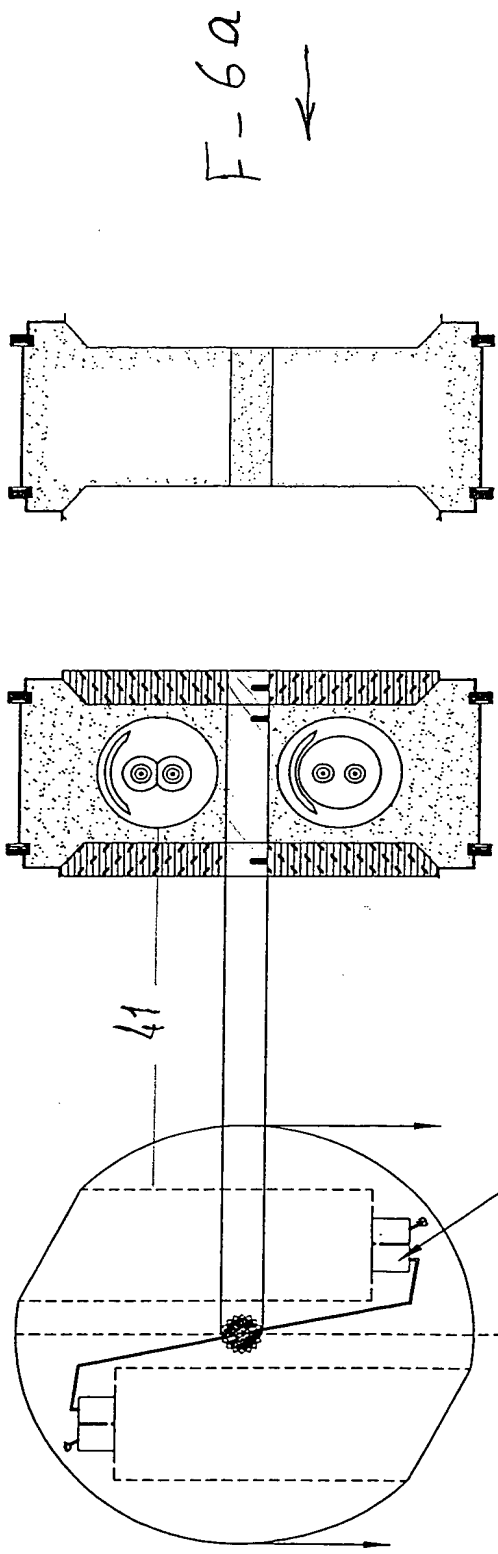
No. 3
F-5b



F-5c

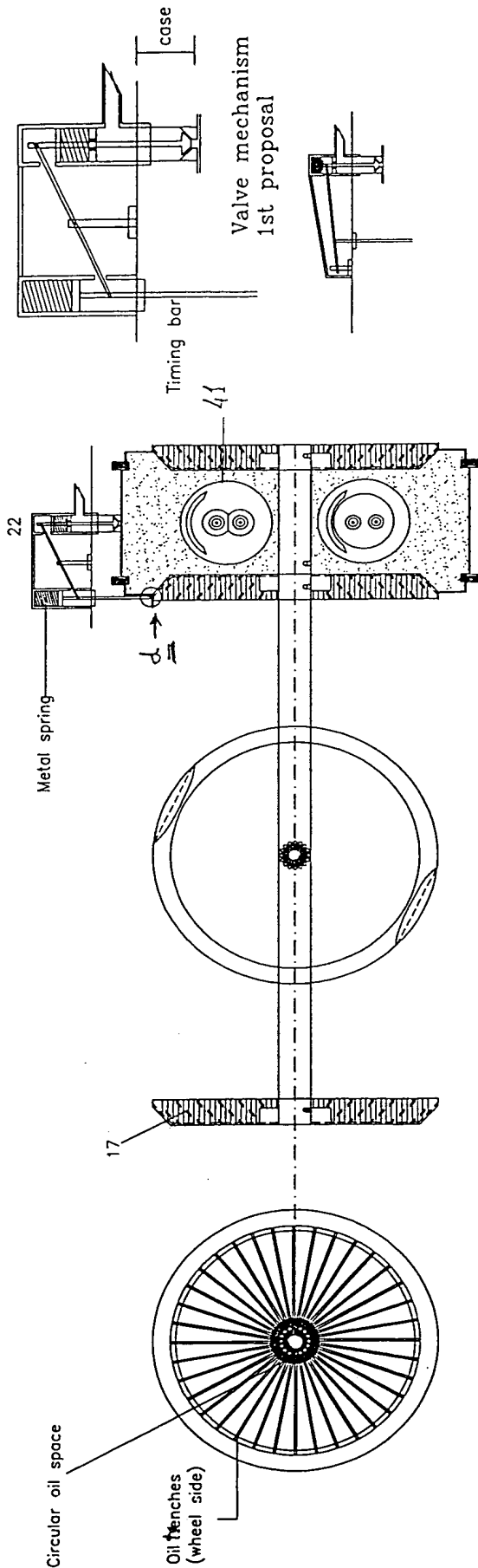
ROTATING PARTS ANALYSIS ON THE CRANK

Fig-5/25



- Fig-6/25

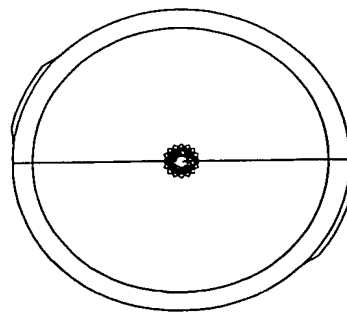
Proposal for additional cooling oil holes in the wheel



Cooling lubricator pad
(Detail 17)

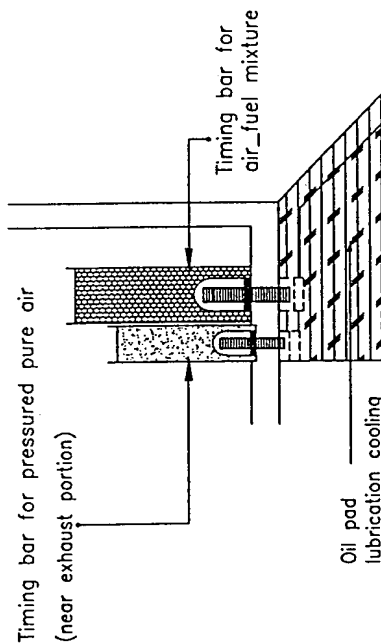
1st proposal of timing system
for valve mechanism
(Lower points pad circular edge)

F-7a



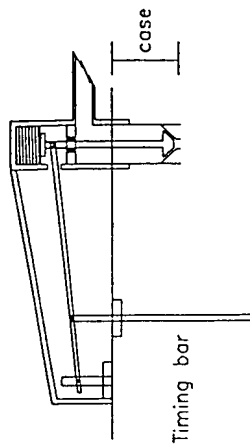
2nd proposal of timing system
for valve mechanism
(Higher points pad circular edge)

F-7d



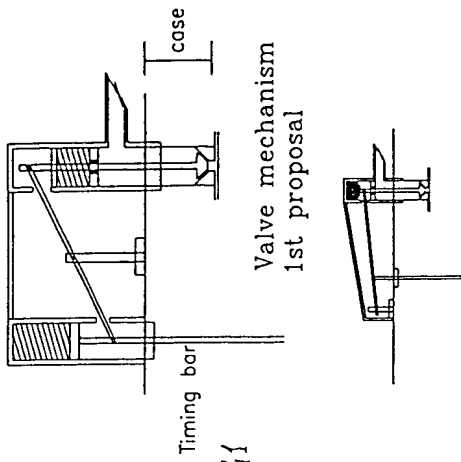
one pad - two valve timing system - d =
(typical performance)

F-7c


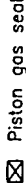

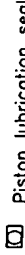
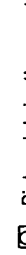



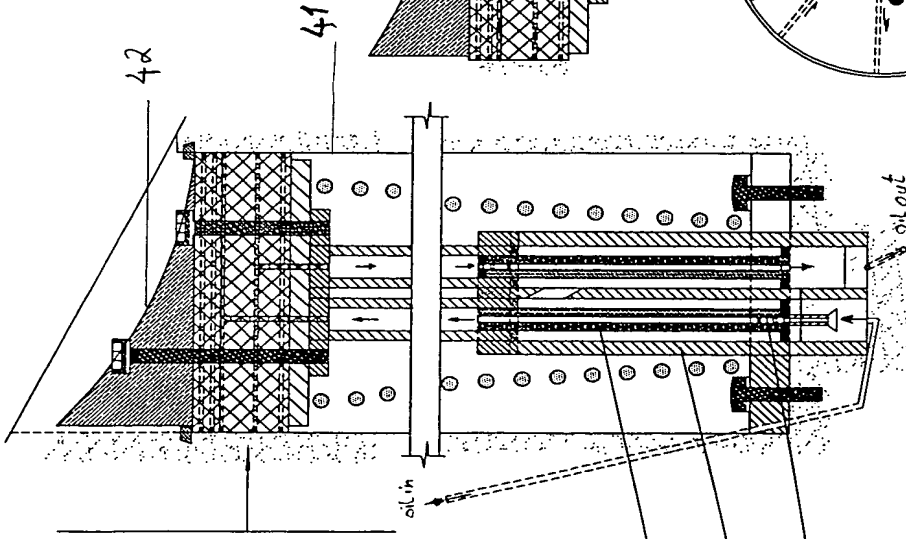
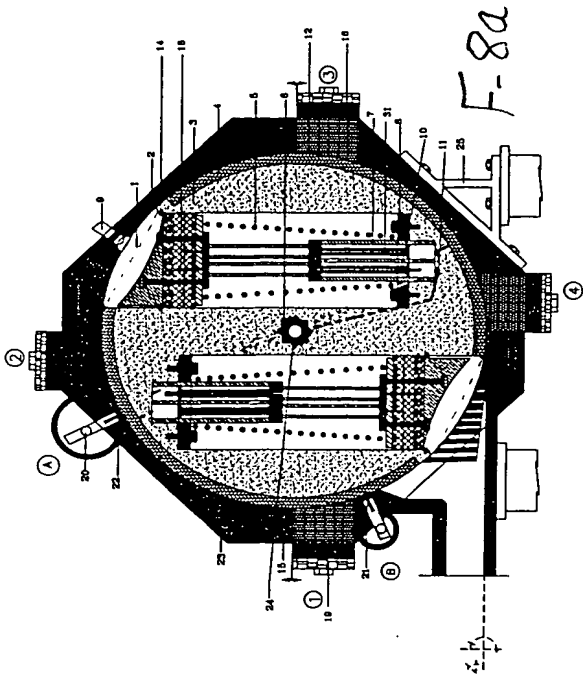
Valve mechanism
2nd proposal

F-7c



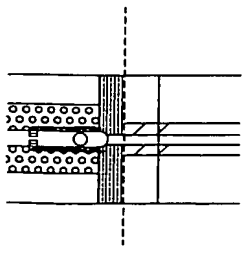
Valve mechanism
1st proposal

-  Solid piston lock ring
 -  Piston gas seal
 -  Piston oil seal
 -  Piston lubrication seal
 -  Piston lubrication seal
 -  Piston oil seal
- (As particular in piston)



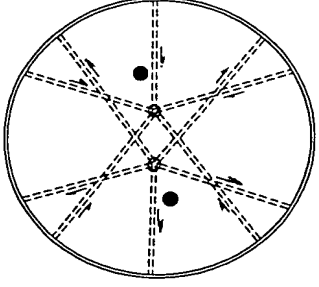
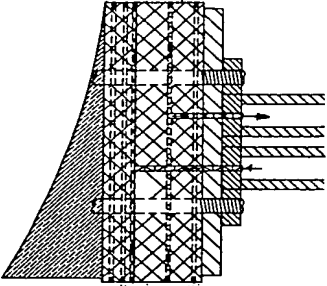
TYPICAL CYLINDER_PISTON

F-8b



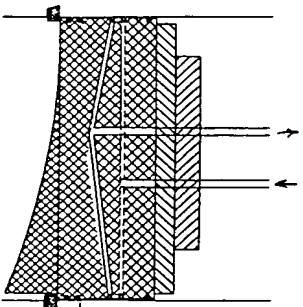
DETAIL 22d

F-8d



PISTON OIL CANALS DISTRIBUTION
Scale 1 : 1.5

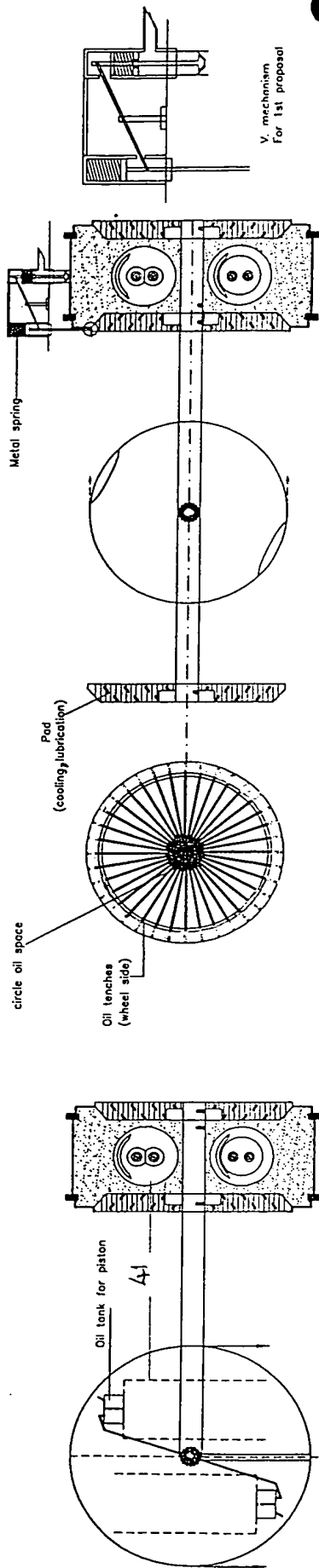
F-8c



Proposal 2
For the piston, lubrication

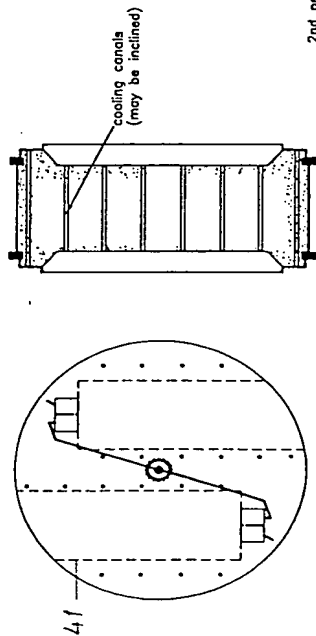
F-8e

= Fig-8/25



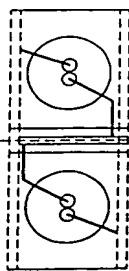
1st proposal of timing system with valve mechanism (Lower points pad circular edge)

LUBRICATION COOLING PAD



2nd proposal of timing system with valve mechanism (higher points pad circular edge)

PISTON INLET OUTLET OIL SYSTEM



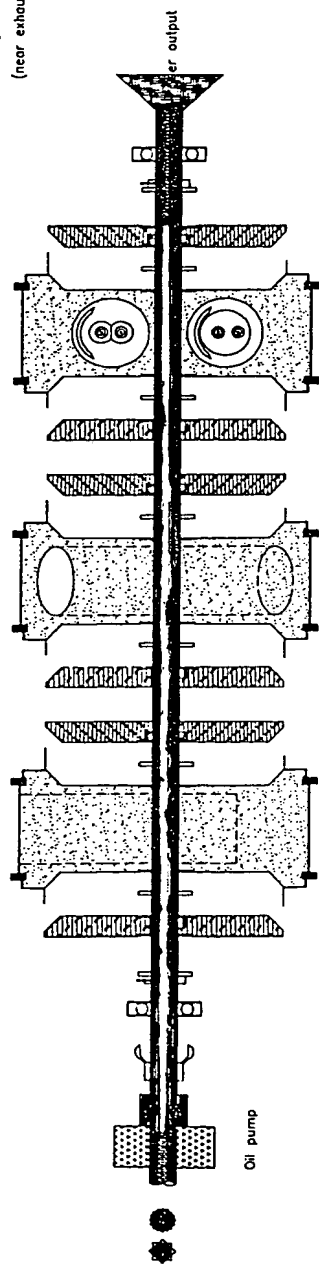
Proposal for additional cooling oil holes in the wheel

V. mechanism For 2nd proposal

F-9c

F-9b

F-9a



(one pad - two valves timing system) (typical performance)

F-9e

NOTE

(Oil inlet hole on shaft as per each part it is not as per scale)

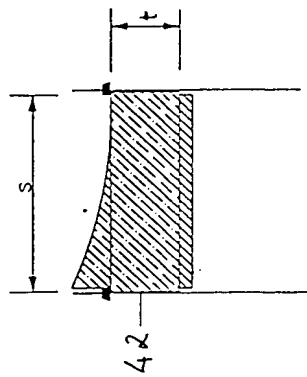
ROTATING PARTS ANALYSIS ON THE CRANK

F-9f

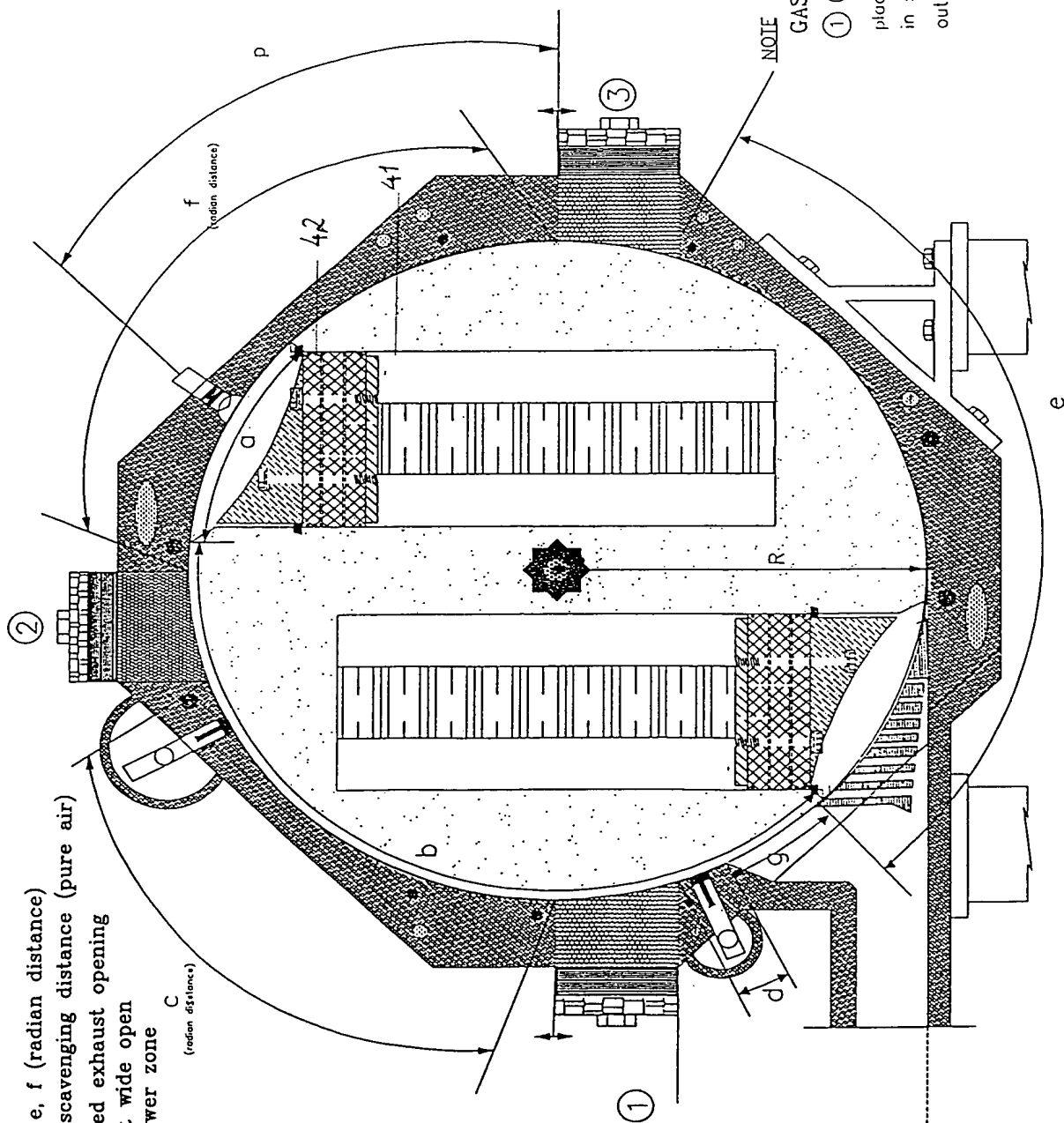
Fig - 9/25

b > c
b > f + 1/2a
d > a

a, b, c, e, f (radian distance)
d: piston scavenging distance (pure air)
e: is graded exhaust opening
g exhaust wide open
p: fuel power zone



t: height of piston cap
s: diameter of piston



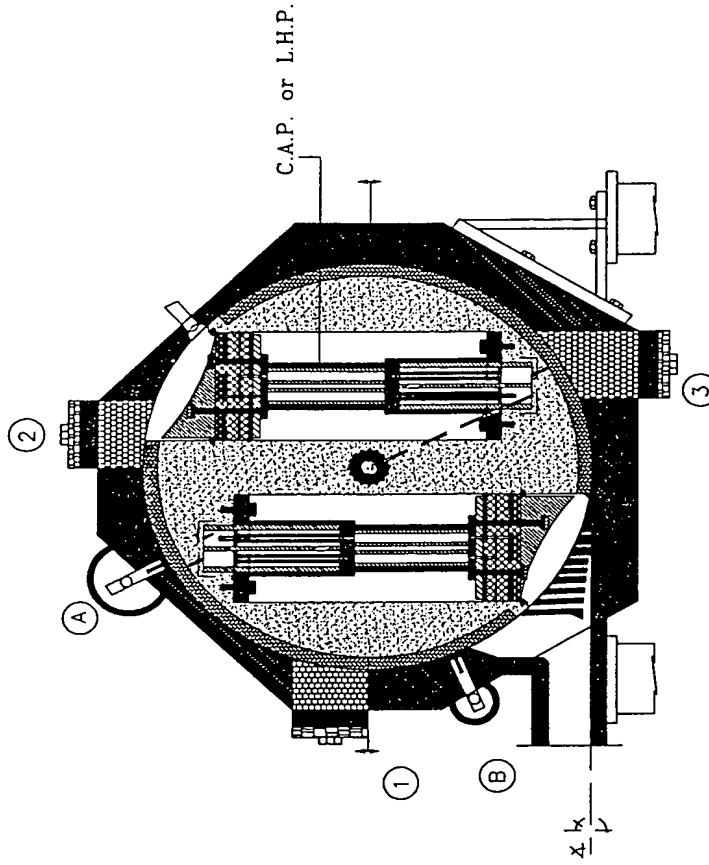
GAS SEAL MASS

NOTE
① ② & ③ Can be replaced in different places as required and could be four pieces in suggested places depend on the outlet angle and other criterias.

SECTION A - A

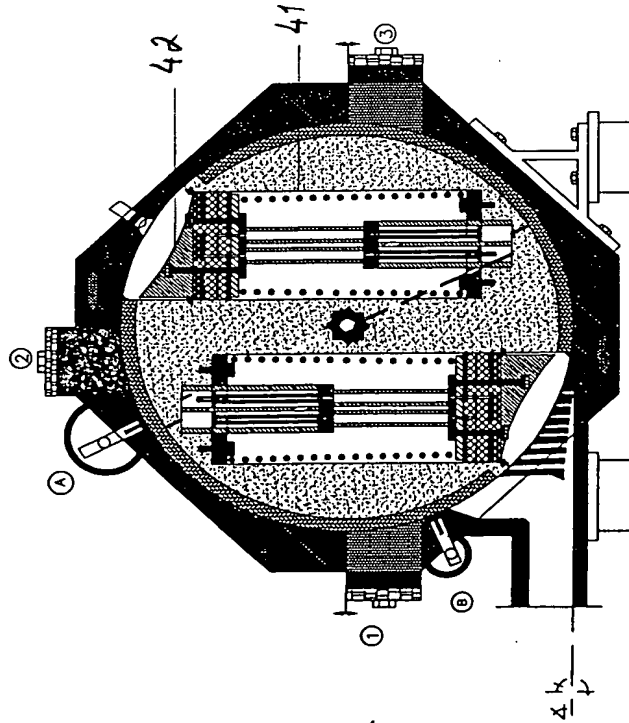
Fig-10/25

C.A.P. : Compressed Air Device.
 L.H.P. : Liquid Hydraulic Device.



Hydraulic (device) push arm modification
 Compressed air power modified
 or liquid (oil) power modified

Fig-11/25
 F-11 b

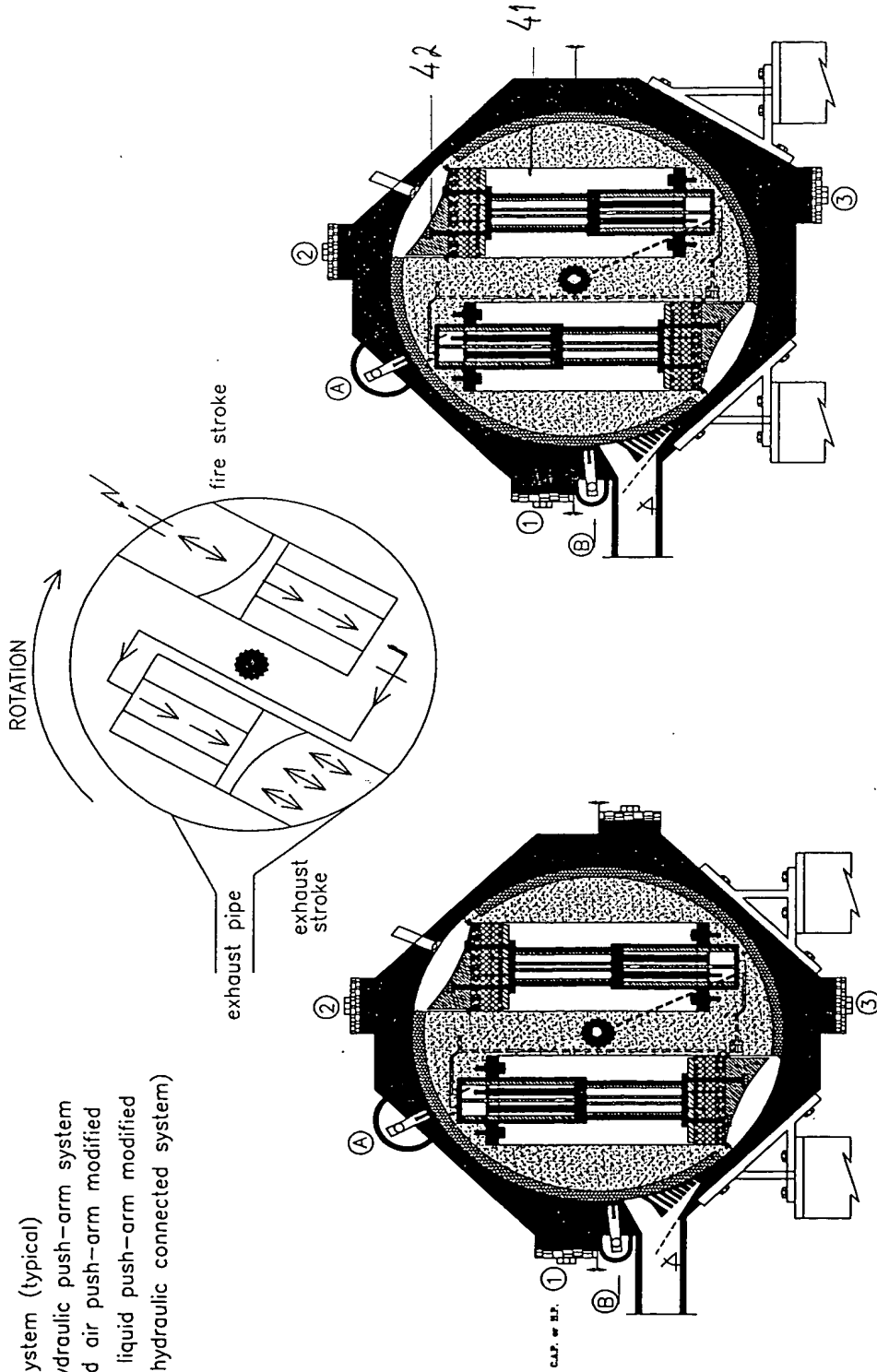


Spring push-arm modification

F-11 a

11/25

Section of system (typical)
 Combined hydraulic push-arm system
 Compressed air push-arm modified
 or Hydraulic liquid push-arm modified
 (two piston hydraulic connected system)



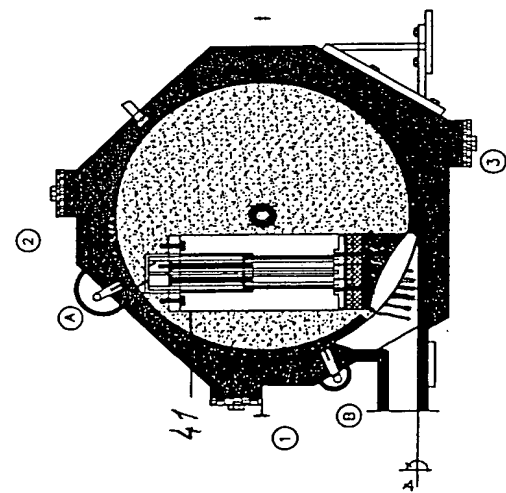
Proposal: 2

Proposal: 1

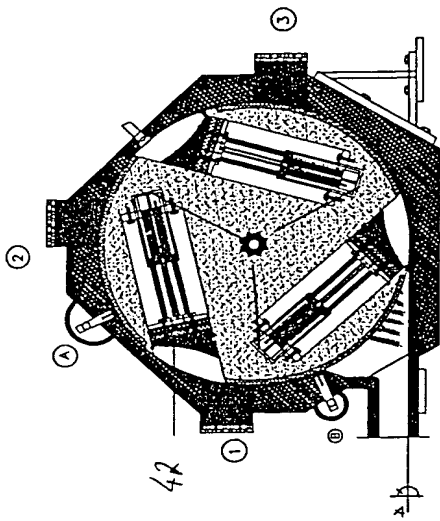
F-12b

F-12a

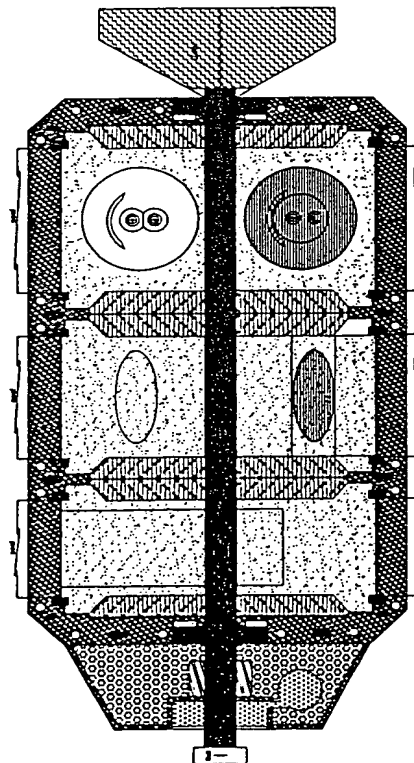
Fig-12/25



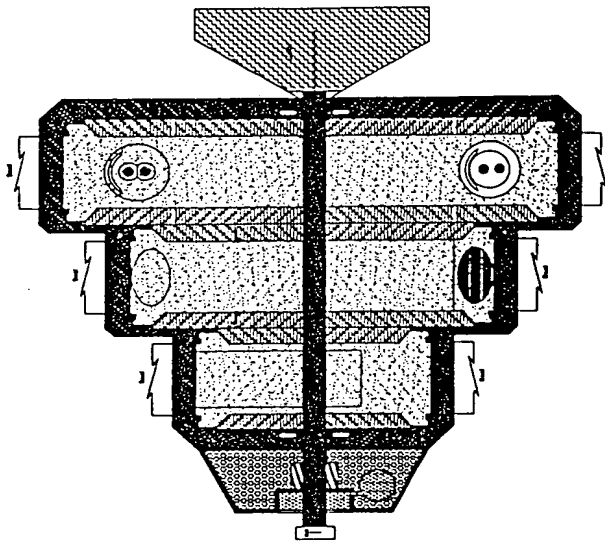
F-13a



F-13b



F-13d



F-13c

Fig-13/25

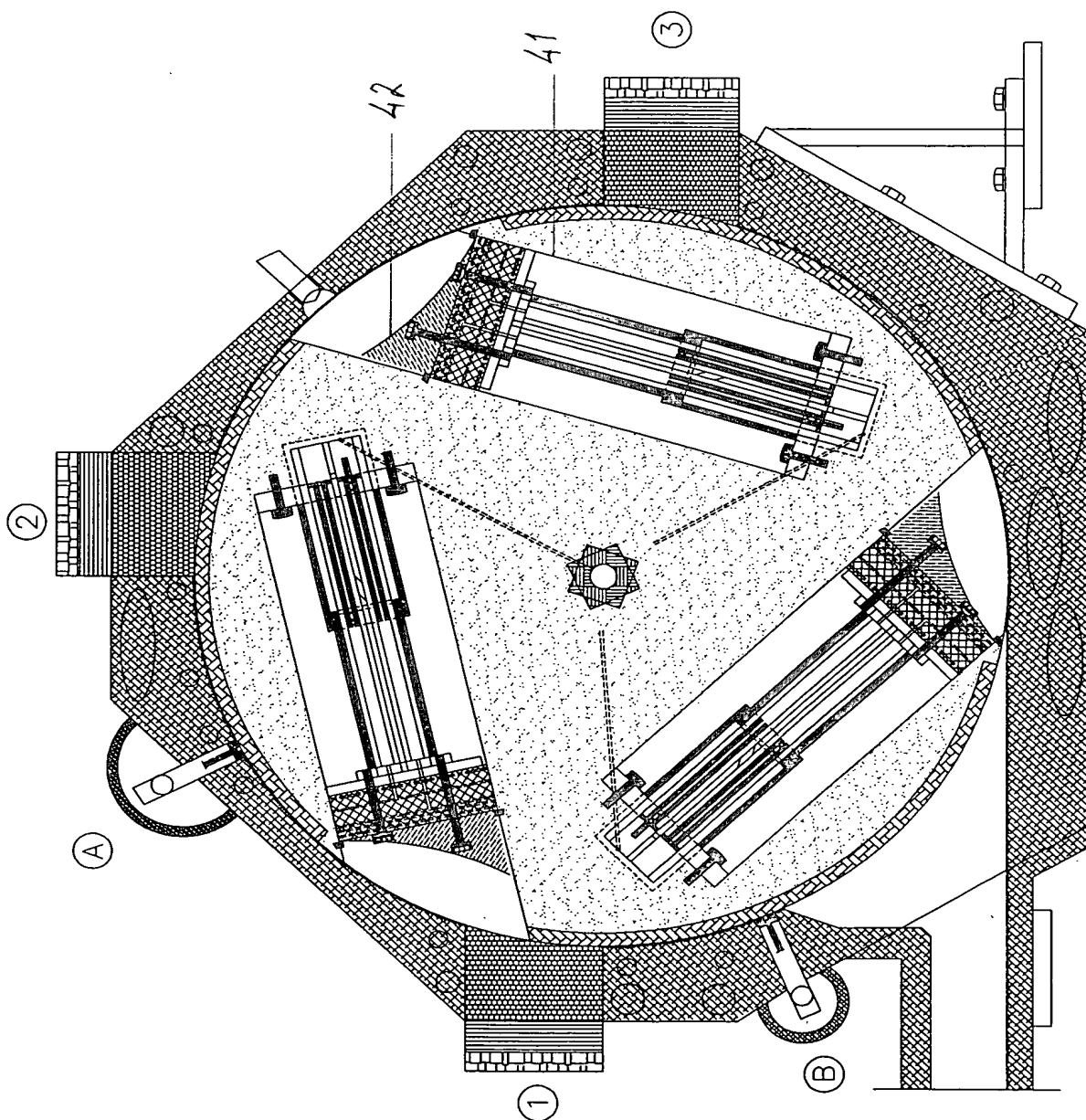


Fig - 14/25

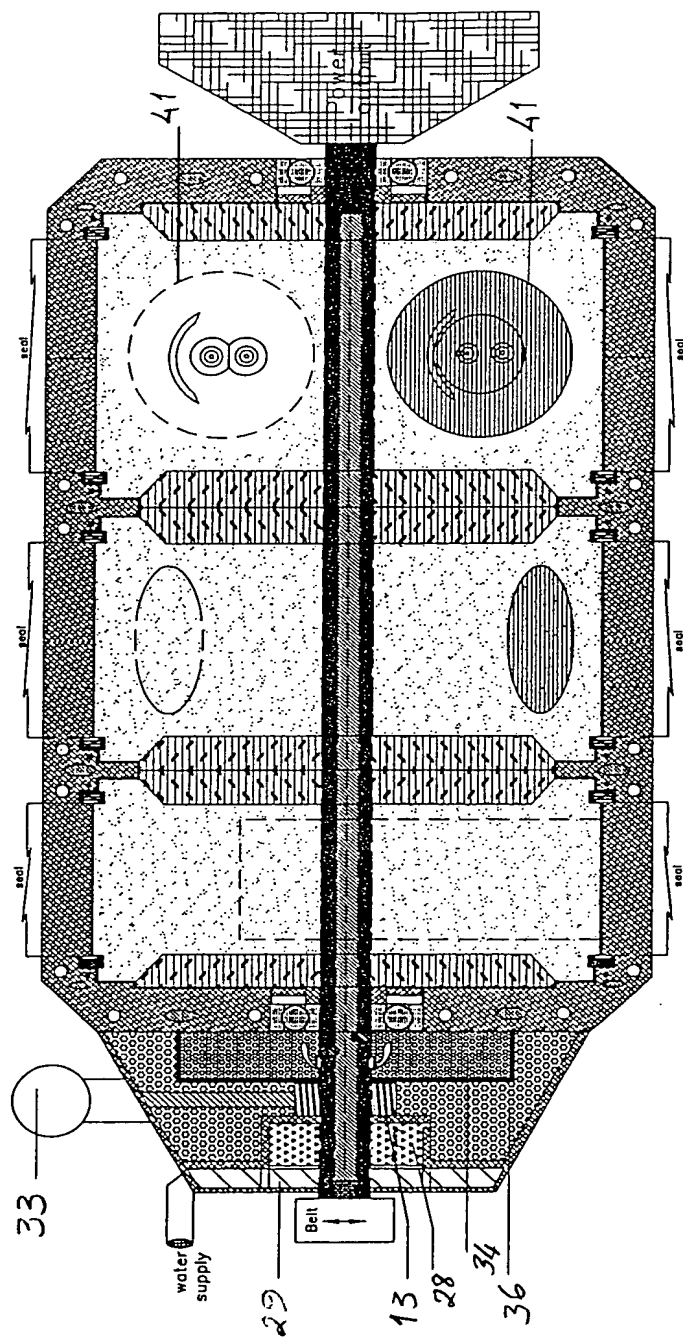


Fig-15/25

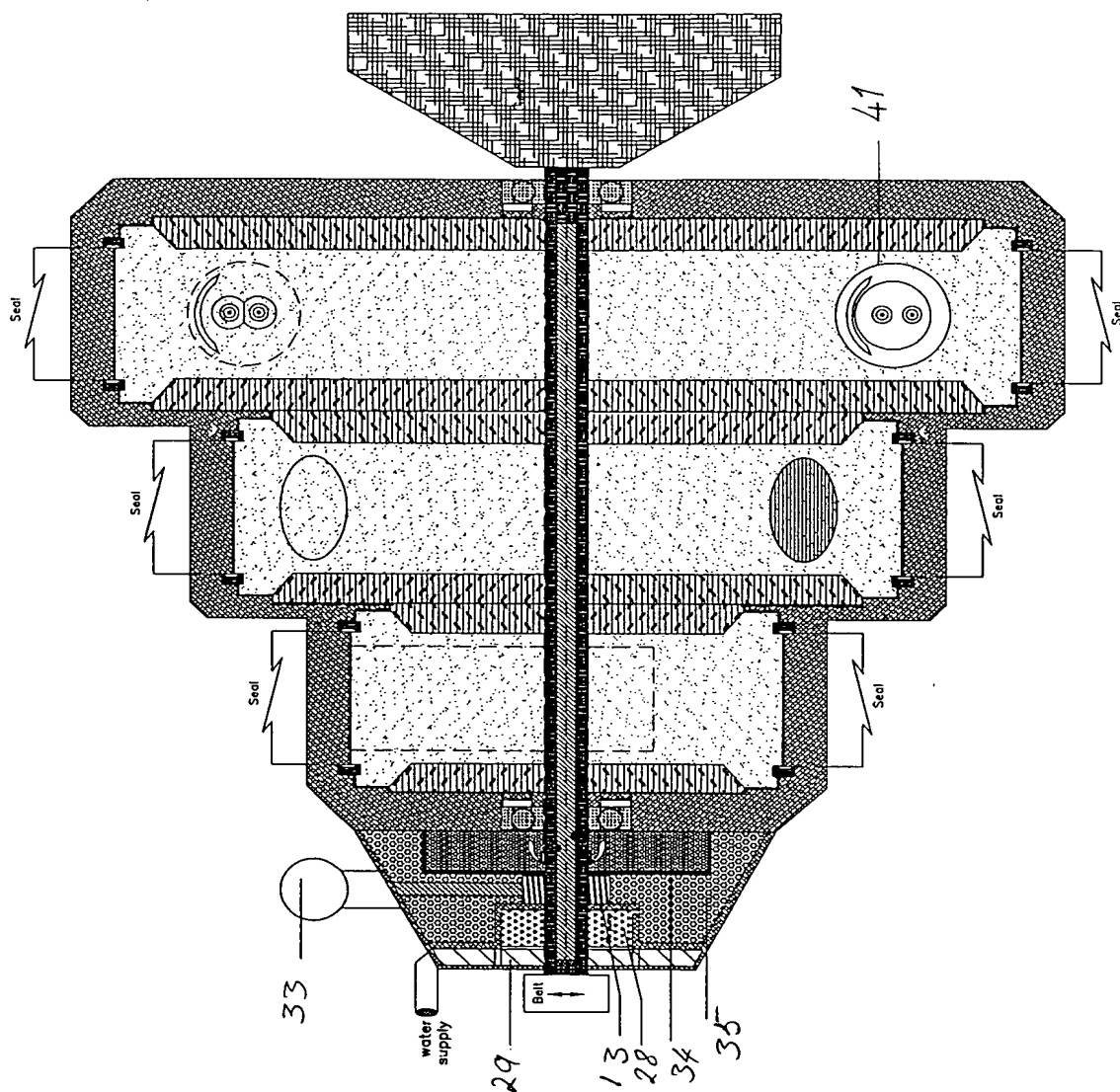


Fig - 16/25

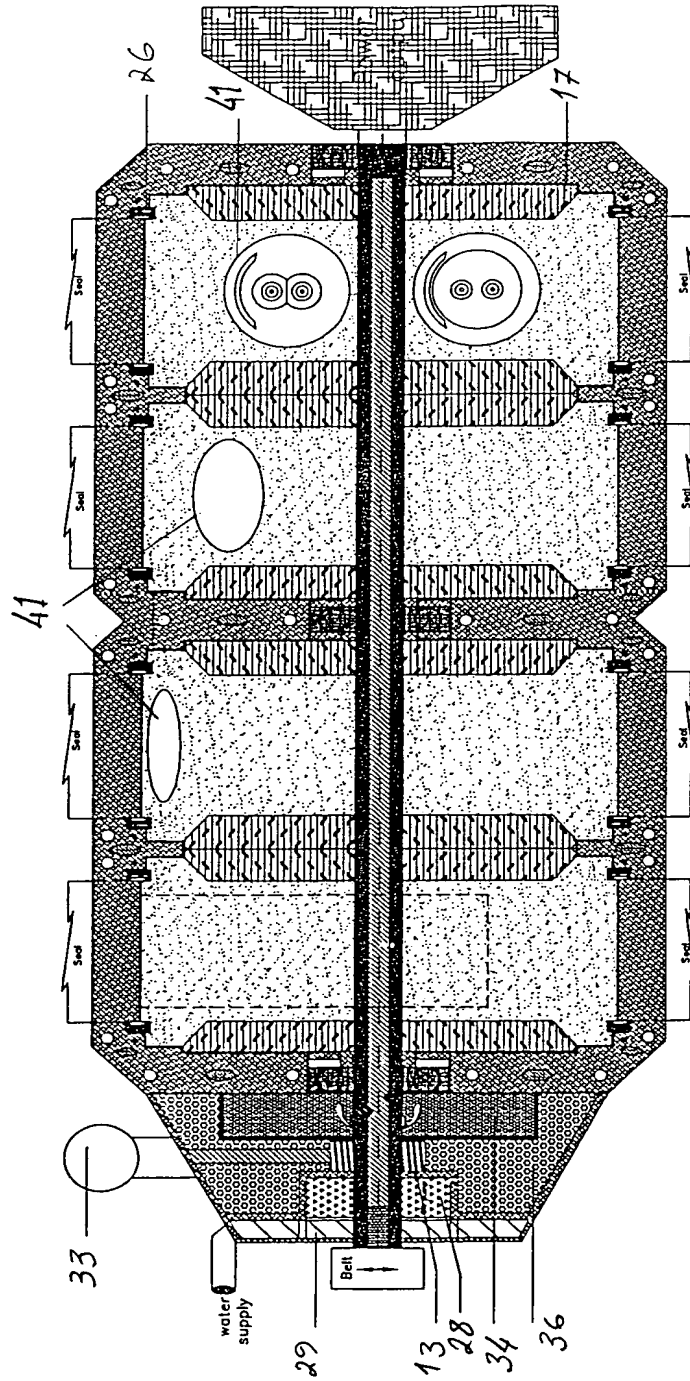
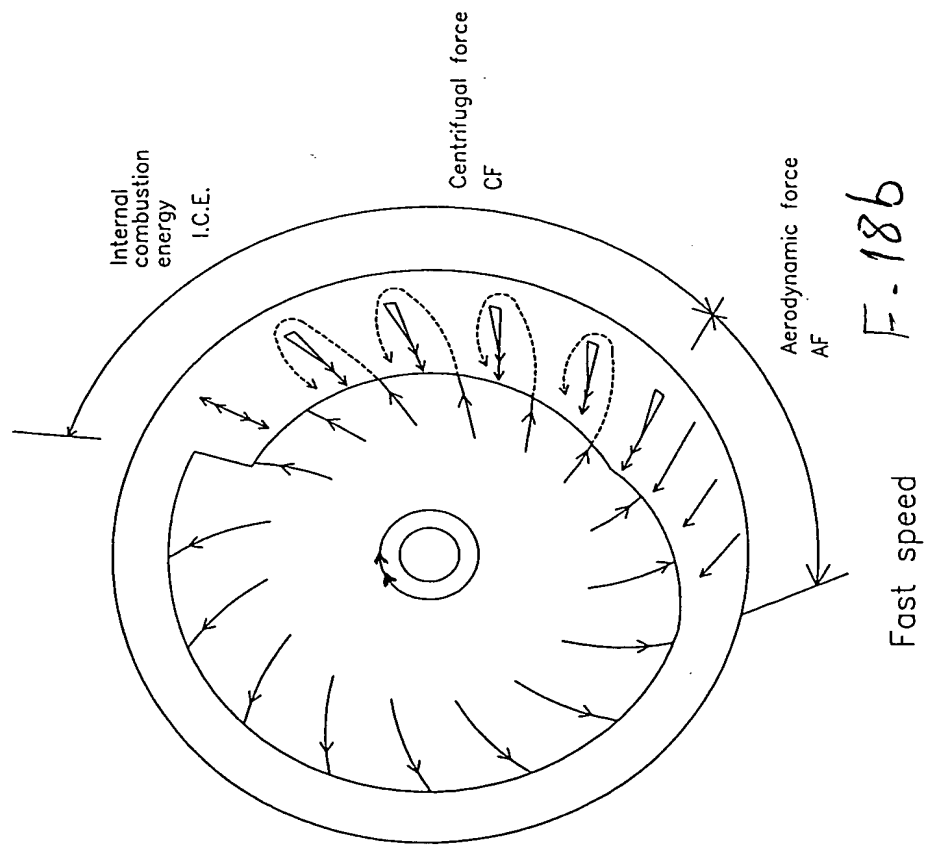
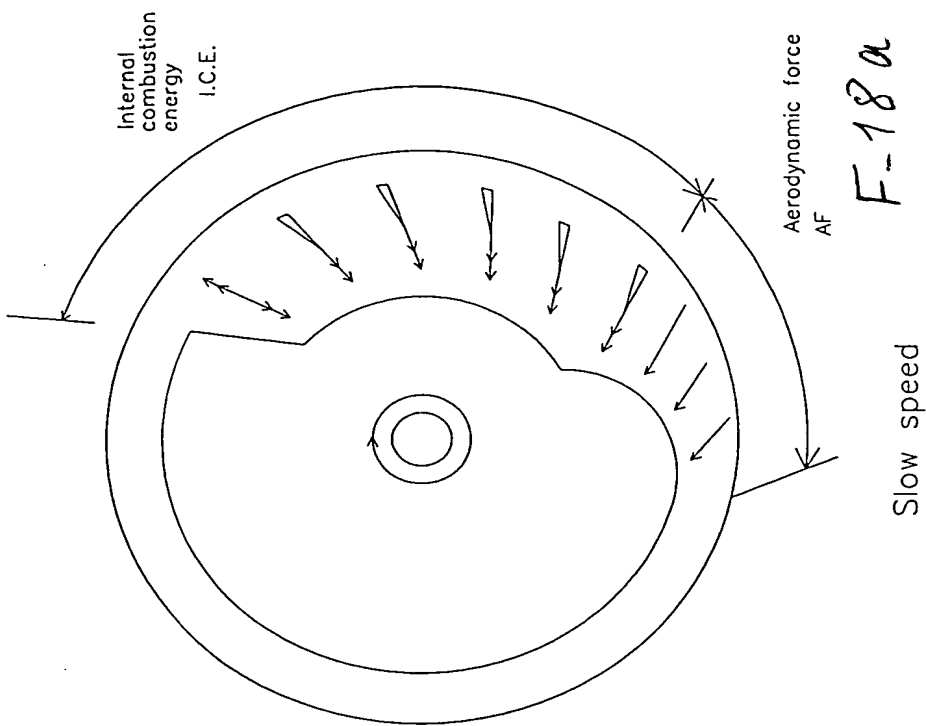


Fig-17/25

DETAILS OF ENGINE FORCES ON PISTONS.



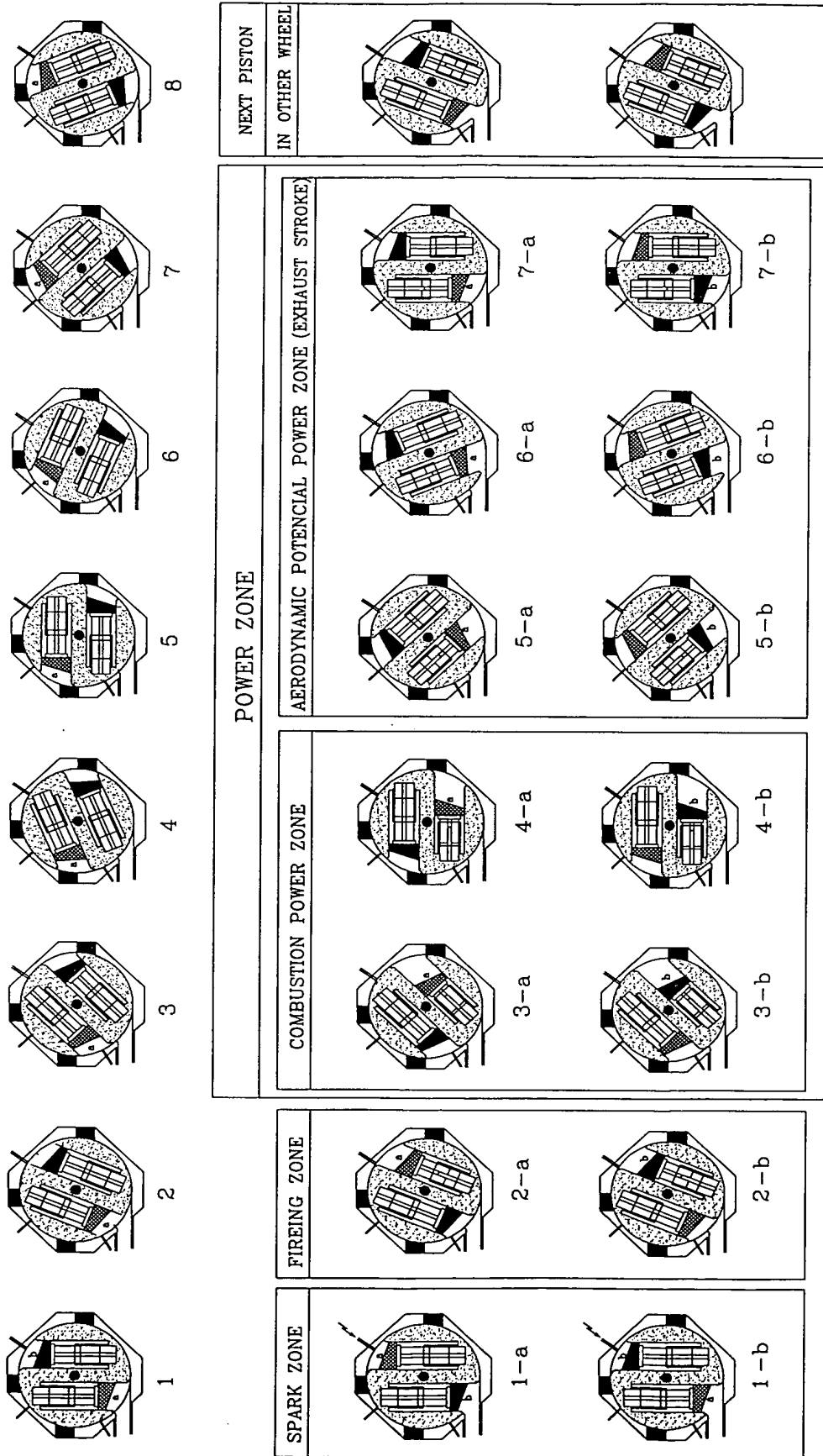
$$P = \text{I.C.E.} + \text{A.F.}$$

$$P = \text{I.C.E.} + \text{C.F.} + \text{A.F.}$$

Fig-18/25

NOTE

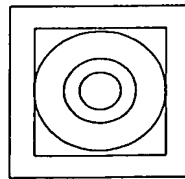
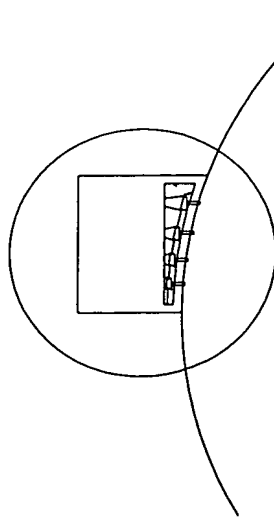
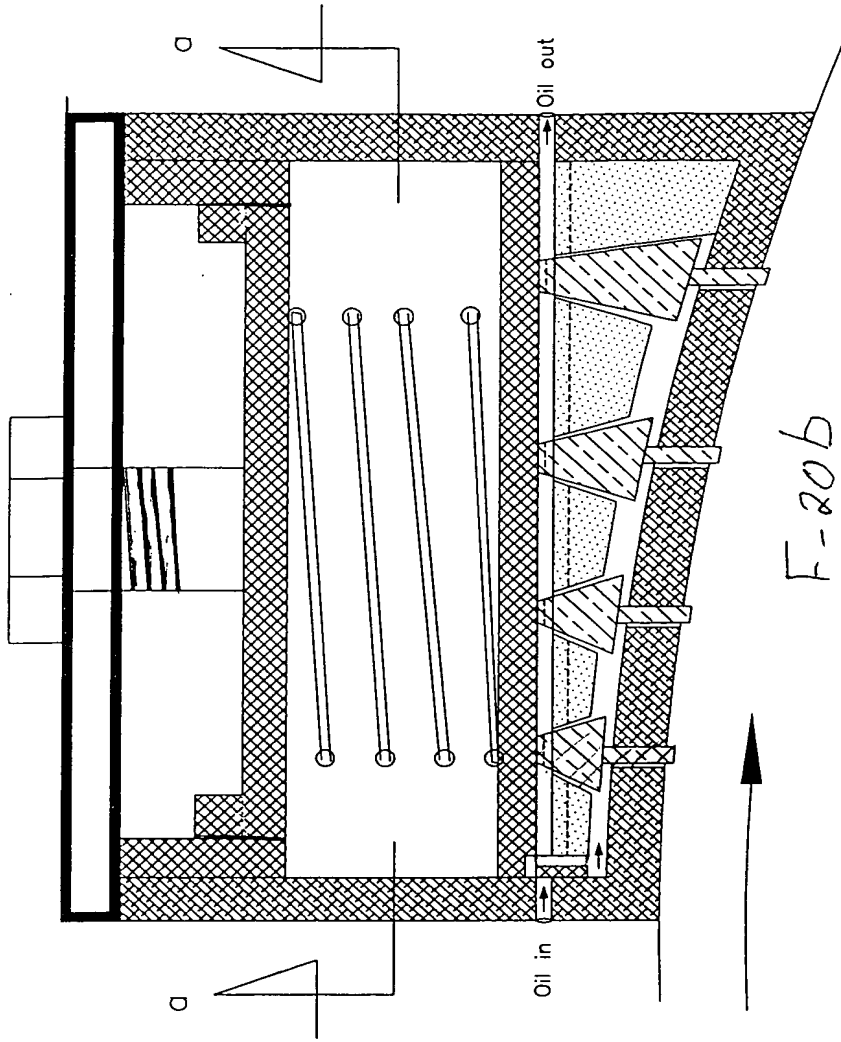
Component elements are not in actual scale



Ignition of piston
(a) starting self
rotation
19/25

Ignition piston (b)
continue rotation

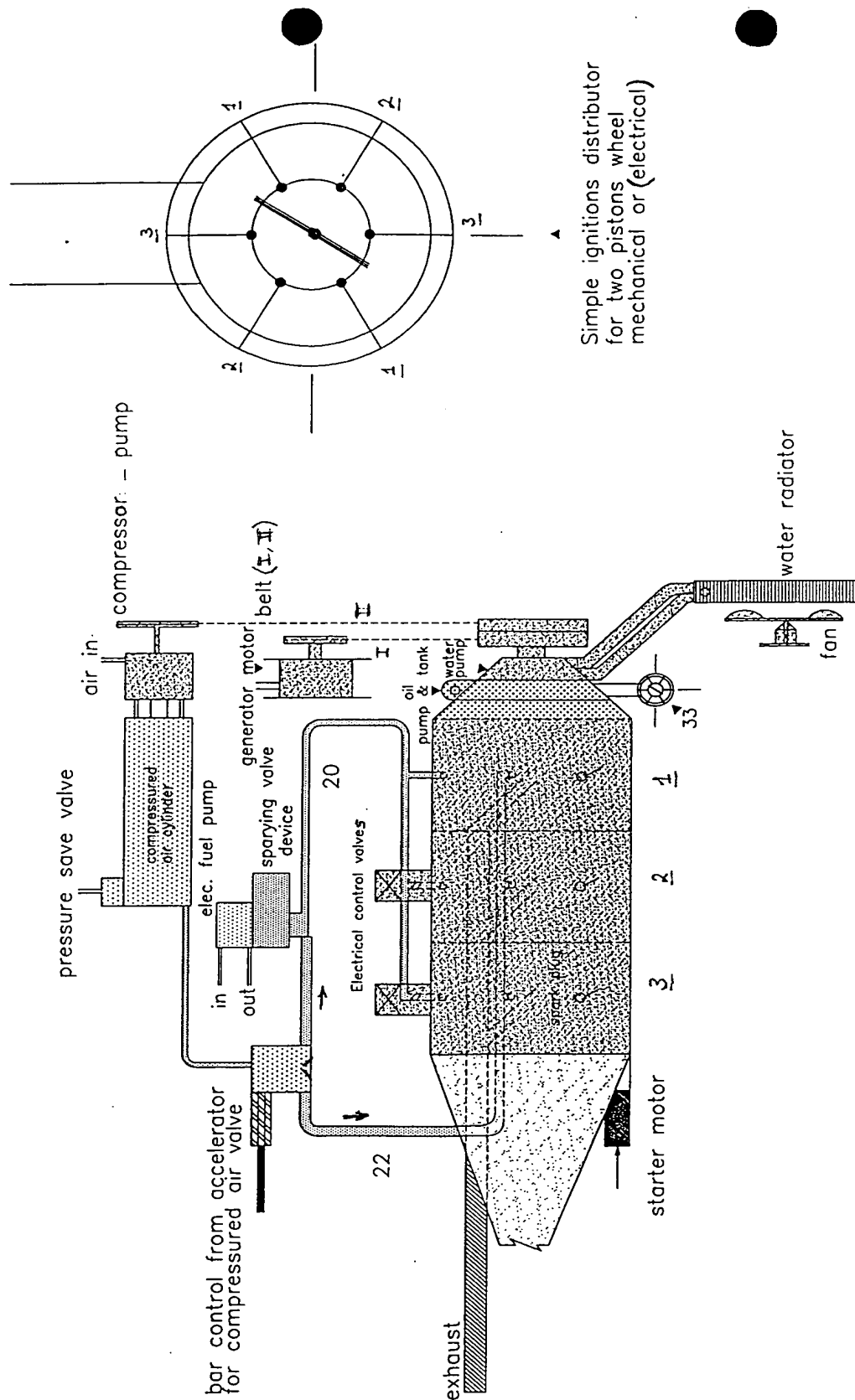
Fig-19/25



Section a - a

F-20c

Fig. 20/25

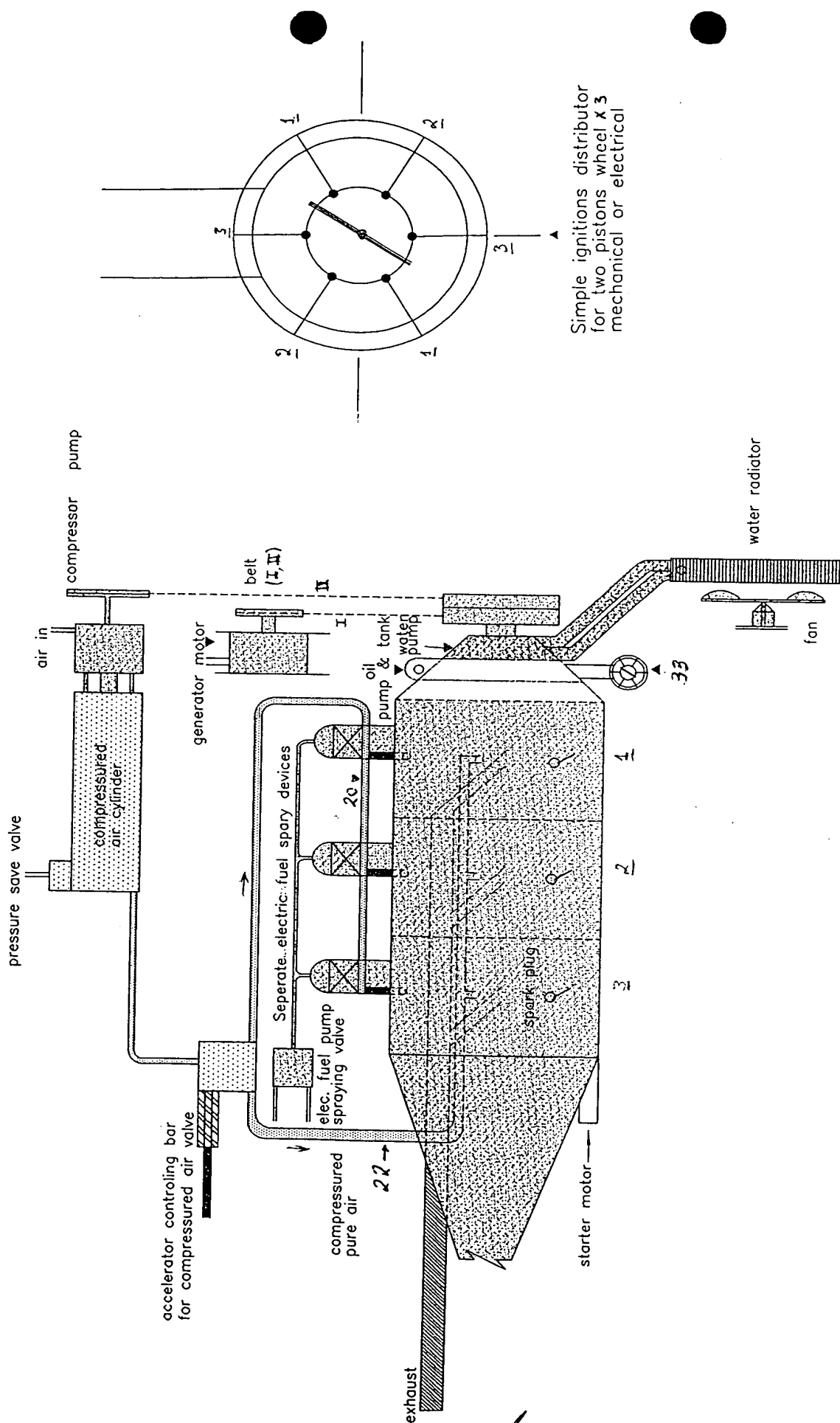


Simple ignitions distributor
for two pistons wheel
mechanical or (electrical)

Proposal No: 1.

Fuel spray injection for all - fuel, air-mix inlet

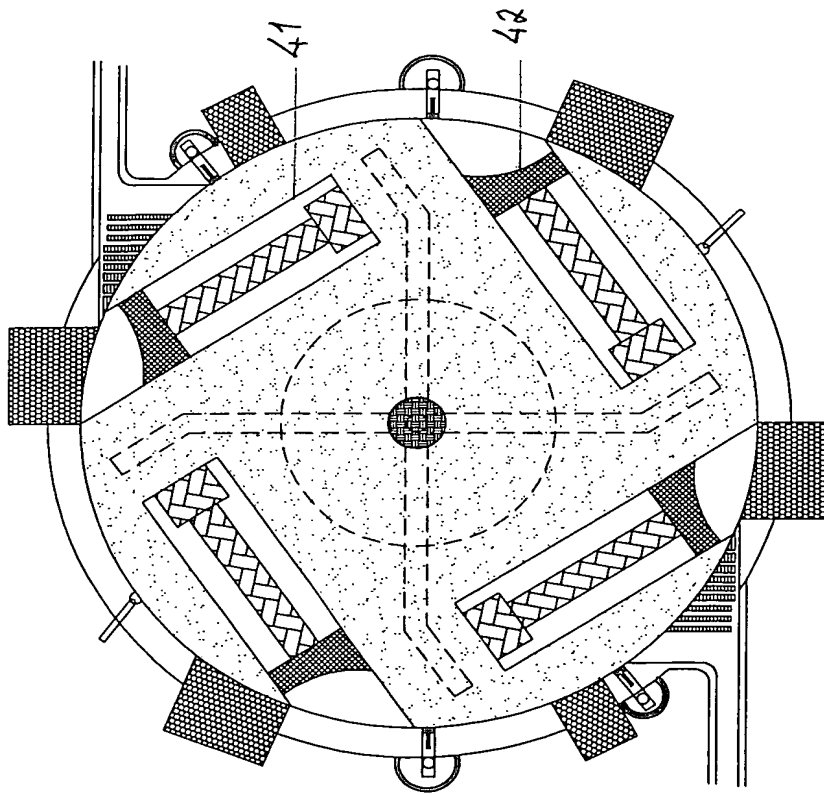
Fig - 21/25



Proposal No: 2.
 Fuel spray injection for each energy unit: separated - fuel air-mix. inlet

Fig-22/25

Typical unit with four pistons
 Using dual ignition system
 Section in horizontal C.L.
 (for vertical crank shaft)

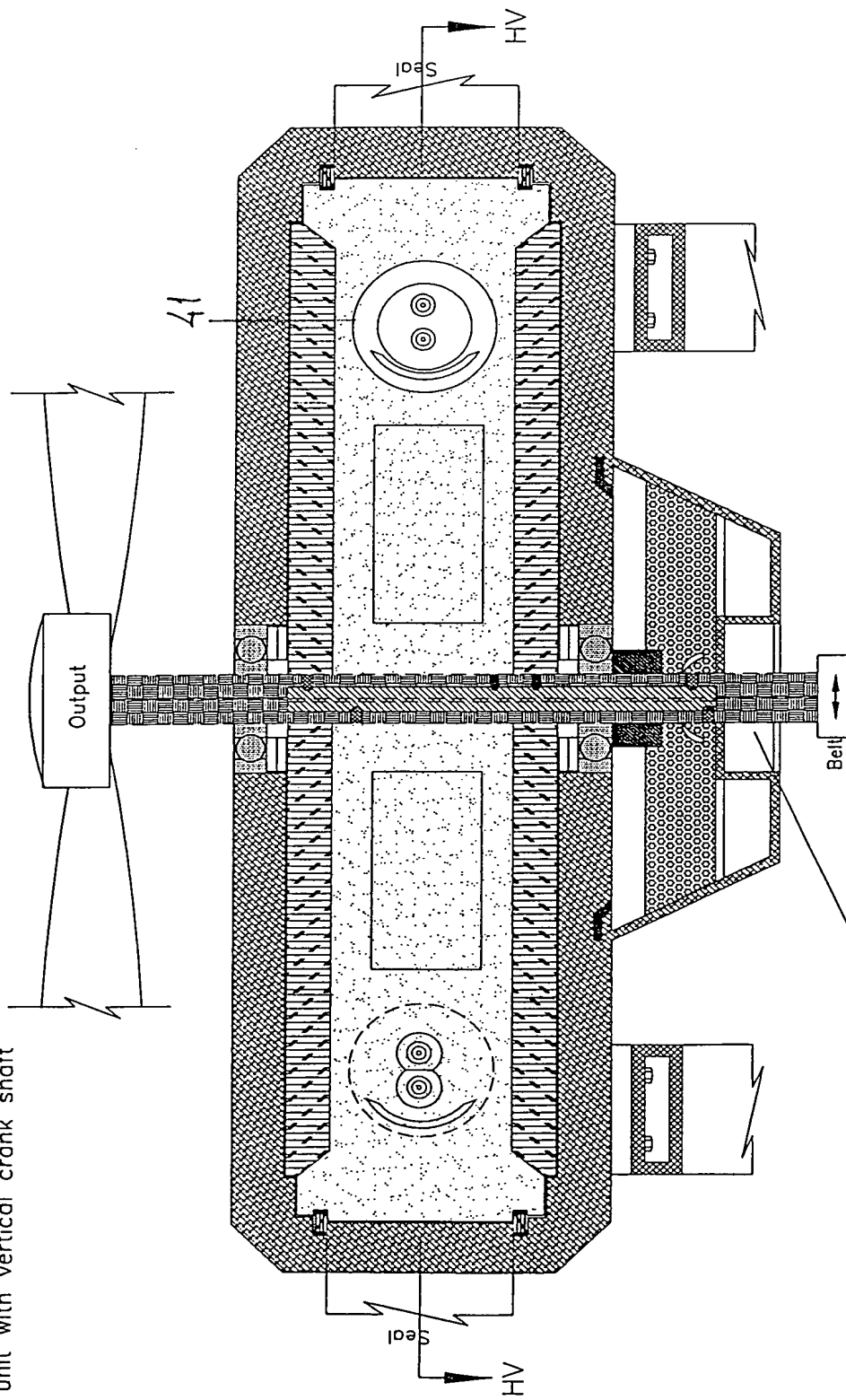


Piston cup curve as specified

section HV - HV
 A super Power Wheel Unit
 (Dual combustion ignition system)

Fig-24/25

Typical unit with vertical crank shaft

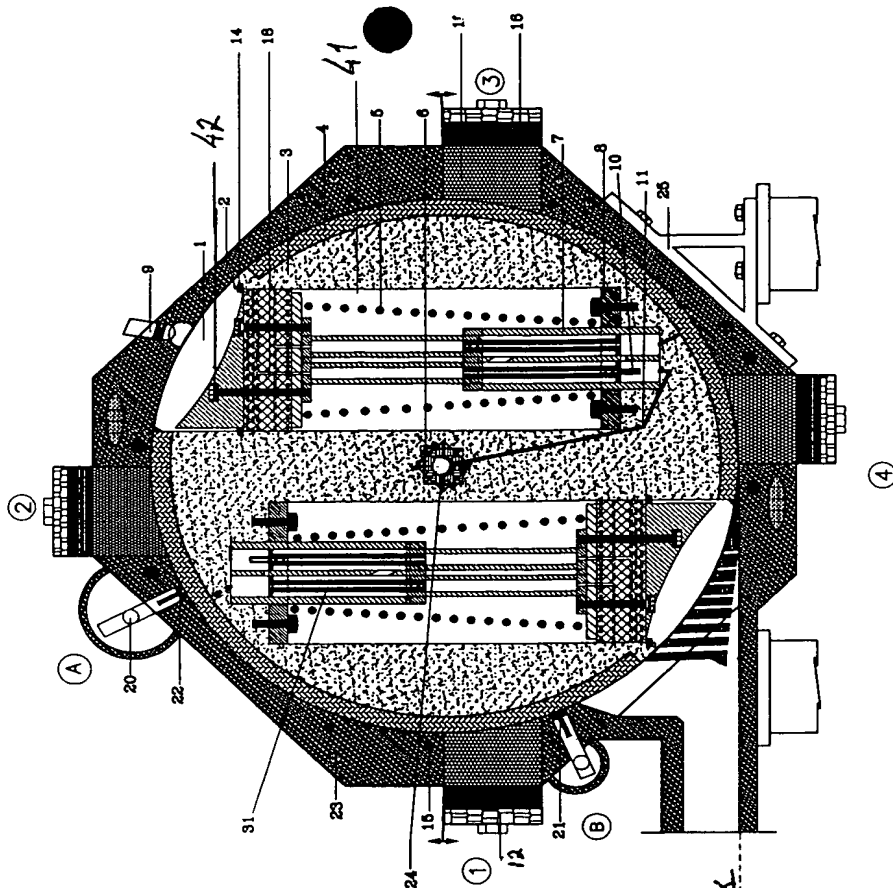


Oil pump not necessary
(Using any oil cooling proposal)

One big power wheel unit
(One big energy unit)

Super Power Wheel Unit
(Dual combustion ignition system or more)
Typical Section in vertical C. L.

Fig. 23/23

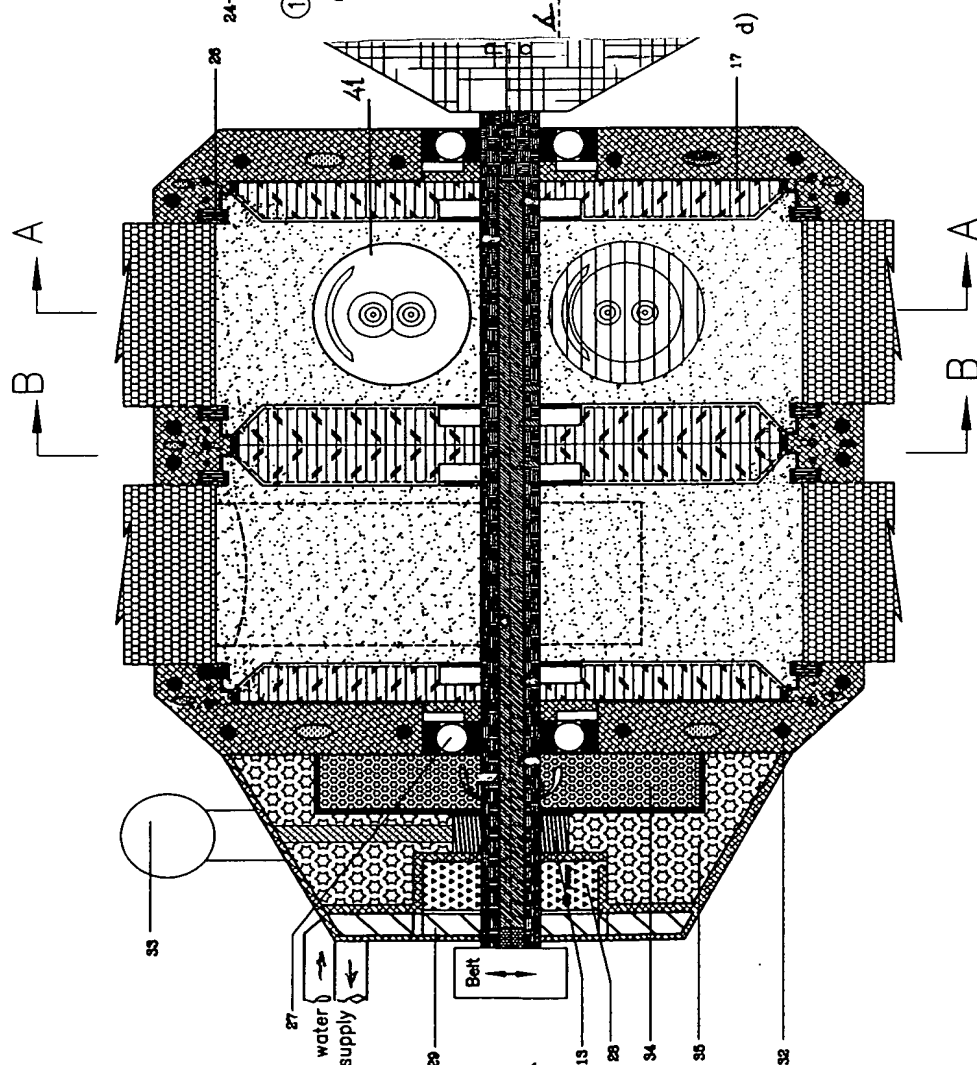


SECTION A - A

Section plan at vertical c. l. of power wheel
(A typical spring power modified)

F-25a

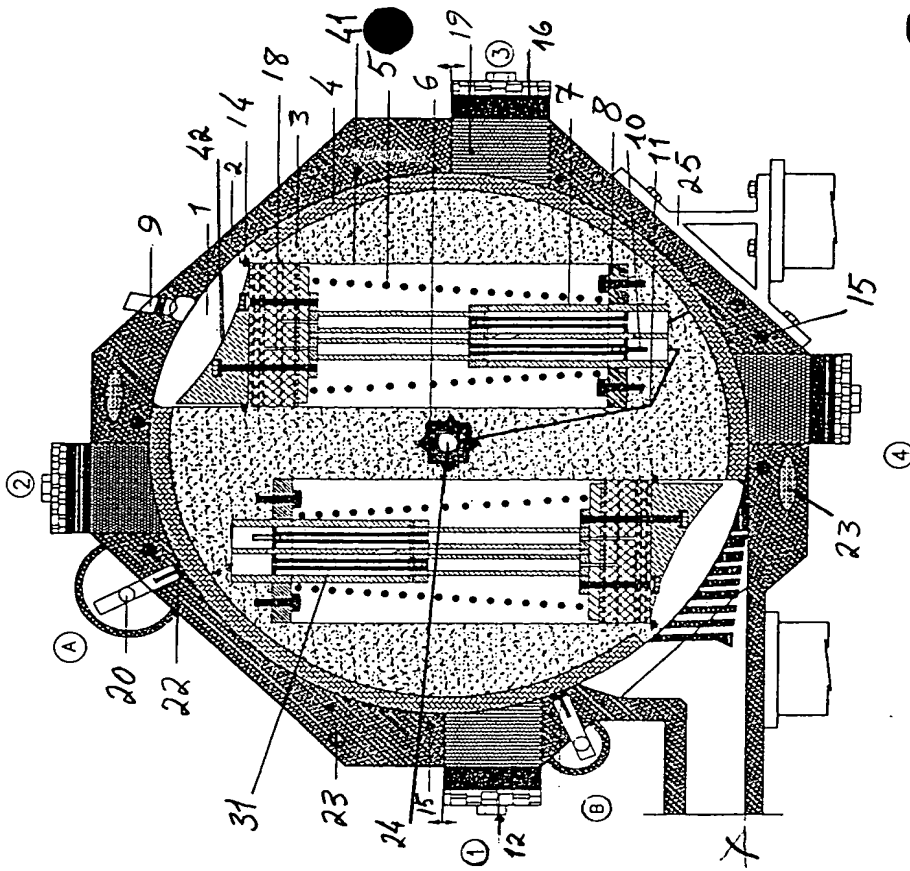
Fig-25/25



TWO POWER WHEEL UNITS

Section plan at horizontal center line (sec. H-H)

F-25b

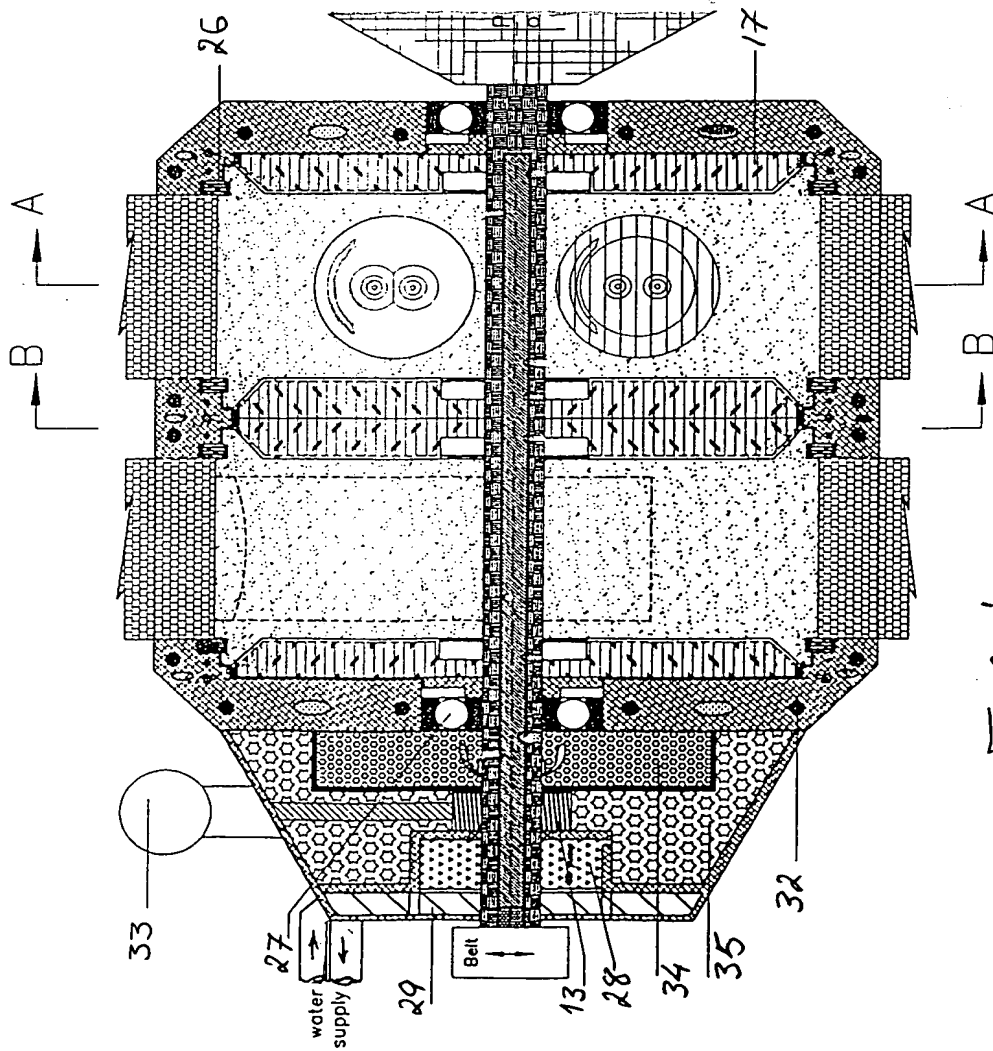


SECTION A - A

Section plan at vertical c. l. of power wheel
(A typical spring power modified)

F-25a

Fig-25/25



TWO POWER WHEEL UNITS
Section plan at horizontal center line (sec. H-H)

F-25b

scale.